ABSTRACT

THE CHANGE OF INSULIN LEVEL AND FOLLICLE DEVELOPMENT IN MICE (Rattus norvegicus) as SOPK MODEL – INSULIN RESISTANCE TREATED WITH SAMBILOTO EXTRACT

The number of SOPK cases - insulin resistance with cases rate of 69 % (Samsulhadi, 2003)- increased, causing difficulty in getting babies (infertility) especially in fertile couples. SOPK is a disturbance in women reproduction periods with multifactorial etiology. One of the SOPK causes is insulin resistance that is the disruption of insulin action causing hyperinsulinemia (Dunaif 1996).

Sambiloto plant extract has certain content one of which is *Diterpe lactone* which can be used as diuretic. The content of sambiloto extract is thought to be able to stimulate insulin release and obstruct glucose absorption by obstructing *alphaglucocidase* and *alpha-amylase* enzymes which will reduce glucose levels in blood. The objective of this study is to know the change in insulin content and the follicle development in mice as SOPK model – insulin resistance treated with sambiloto extract.

The study was a laboratory experiment, with complete random sampling design. The control and experimental groups composed of 25 white mice (Ratus norvegicus) were randomly divided into 5 groups, with 5 mice in each group. Control groups (K) were K-, which was not treated, and K+, which was made as SOPK model, that is insulin resistance given testosterone propionate for 28 days. Experimental groups are divided into Group treated with sambiloto extract dosage of 18mg/100g body weight/day, Group treated with sambiloto extract dosage of 36mg/100g body weight/day, and Group treated with sambiloto extract dosage of 72mg/100g body weight/day. The last research is to known how is the insulin and follicles growth.

The results of the study showed that the average of Anova test with the biggest value of 8000 was primary follicle in group K- and followed by groups P1 and P3 with sambiloto extract dosage of 18mg and 36 mg with the average of 6.8000. The result of normality test with oneway sample kolmogorov smirnov test showed that primary, secondary, tertiary, and de Graff follicles had the value $p > 0.05$. This could be concluded that the data had normal distribution. The LSD test showed significant difference between the development of primary follicles in control groups and in treated group with p: 0.031, and the development of de Graff follicles in control groups and in treated groups with p: 0.002. Therefore, it could be concluded that there was a significant relationship with the use of sambiloto extract.

The giving of sambiloto extract proved to be able to increase the development of primary and de Graff follicles. With significant p value 0.031 and 0.002 where $p<0.05$.

Keyword : sambiloto extract, insulin and development of follicles